

**Chapter 116.**  
**Storm Drainage and Sediment Control.**  
**(replaced in its entirety by Ord. No. 27-11)**

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## **Article I. General Information**

### **Sec. 116.101. Authority and Title**

This code is adopted in accordance with statutory authority granted under IND. CODE chapter 36-9-28.5 and Ind. Code §§ 36-9-2-8—13, and the requirements of Phase II of the National Pollutant Discharge Elimination System program (FR Doc. 99-29181) authorized by the 1972 amendments to the Clean Water Act, the Indiana Department of Environmental Management's Rule 13 (327 IAC 15-13), and the Indiana Department of Environmental Management's Rule 5 (327 IAC 15-5). Based on this authority and requirements, this code regulates:

- (a) Discharges of prohibited non-stormwater flows into the storm drain system.
- (b) Stormwater drainage improvements related to development of lands located within the City of West Lafayette.
- (c) Drainage control systems installed during new construction and grading of lots and other parcels of land.
- (d) Erosion and sediment control systems installed during new construction and grading of lots and other parcels of land.
- (e) The design, construction, and maintenance of stormwater drainage facilities and systems.
- (f) The design, construction, and maintenance of stormwater quality facilities and systems.

This code shall be known and may be cited as the West Lafayette Stormwater Code.

### **Sec. 116.102. Background**

The Common Council of the City of West Lafayette, State of Indiana, on February 6, 1989 adopted Ordinance No. 43-88 which established the "The City of West Lafayette Drainage Code", in order to govern the control of runoff of stormwater and to protect, conserve and promote the orderly development of the land in the City of West Lafayette and its water resources. This code was primarily targeted at stormwater discharge quantity, and erosion and sediment control.

On December 8, 1999, Phase II of the National Pollutant Discharge Elimination System (NPDES) permit program was published in the Federal Register. The NPDES program, as authorized by the 1972 amendments to the Clean Water Act, controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Phase II of NPDES requires permit coverage for stormwater discharges from regulated small municipal separate storm sewer systems (MS4s) and for small construction activity that results in the disturbance of equal to or greater than one acre. This federal regulation went into effect March 10, 2003. In response to Phase II of NPDES, the Indiana Department of Environmental Management enacted Rule 13 (327 IAC 15-13) and revised Rule 5 (327 IAC 15-5).

Under these new State and Federal regulations, the City of West Lafayette is required to establish a regulatory mechanism for stormwater quality management. Therefore, the "City of West Lafayette Drainage Code" was expanded to include stormwater quality in addition to quantity.

### **Sec. 116.103. Findings**

The City of West Lafayette finds that:

- (a) Water bodies, roadways, structures, and other property within, and downstream of the City of West Lafayette are at times subjected to flooding;
- (b) Flooding is a danger to the lives and property of the public and is also a danger to the natural resources of the region;
- (c) Land development alters the hydrologic response of watersheds, resulting in increased stormwater runoff rates and volumes, increased flooding, increased stream channel erosion, and increased sediment transport and deposition;
- (d) Soil erosion resulting from land-disturbing activities causes a significant amount of sediment and other pollutants to be transported off-site and deposited in ditches, streams, wetlands, lakes, and reservoirs;
- (e) Increases of stormwater runoff rates, soil erosion, and non-point source pollution have occurred as a result of land development, and have resulted in a deterioration of the water resources of the City of West Lafayette;
- (f) Increased stormwater runoff rates and volumes, and the sediments and pollutants associated with stormwater runoff from future development projects within the City of West Lafayette will, absent reasonable regulation and control, adversely affect the City of West Lafayette's water bodies and water resources;
- (g) Illicit discharges have occurred as a result of illegal dumping and direct connections of non-stormwater flows, and have resulted in a deterioration of the water resources of the City of West Lafayette;
- (h) Continued pollutant contributions from illicit discharges within the City of West Lafayette will, absent reasonable regulation, monitoring, and enforcement, adversely affect the City of West Lafayette's water bodies and water resources;
- (i) Stormwater runoff, soil erosion, non-point source pollution, and illicit sources of pollution can be controlled and minimized by the regulation of stormwater management;
- (j) Adopting the standards, criteria, and procedures contained and referenced in this code and implementing the same will address many of the deleterious effects of stormwater runoff and illicit discharges;
- (k) Adopting this code is necessary for the preservation of the public health, safety, and welfare, and for the conservation of our natural resources.

#### **Sec. 116.104. Purpose**

The purpose of this code is to provide for the health, safety, and general welfare of the citizens of the City of West Lafayette through the regulation of stormwater and non-stormwater discharges to the storm drainage system; to enhance economic objectives; and to protect, conserve and promote the orderly development of land and water resources within the City of West Lafayette. This code establishes methods for managing the quantity and quality of stormwater entering into the storm drain system in order to comply with State and Federal requirements. The objectives of this code are:

- (a) To reduce the hazard to public health and safety caused by excessive stormwater runoff.
- (b) To regulate the contribution of pollutants to the storm drain system from active construction site runoff.
- (c) To regulate the contribution of pollutants to the storm drain system from runoff from new development and re-development.
- (d) To prohibit discharges of non-stormwater flow into the storm drain system.
- (e) To establish legal authority to carry out all inspection, monitoring, and enforcement procedures necessary to ensure compliance with this code.

#### **Sec. 116.105. Abbreviations and Definitions**

For the purpose of this code, the abbreviations and definitions provided in Appendix A shall apply.

#### **Sec. 116.106. Responsibility for Administration**

The City of West Lafayette shall administer, implement, and enforce the provisions of this code. The West Lafayette Board of Public Works and Safety is authorized to adopt a technical manual and standards for use with this code. Any powers granted or duties imposed upon the authorized enforcement agency may be exercised in writing by the City Engineer, subject to review as provided herein.

#### **Sec. 116.107. Conflicting Provisions**

The provisions of this code shall be deemed as additional requirements to minimum standards required by the West Lafayette City Code, and as supplemental requirements to Indiana's Rule 5 regarding Stormwater Discharge Associated with Construction Activity, (327 IAC 15-5), and Indiana's Rule 13 regarding Stormwater Runoff Associated with Municipal Separate Storm Sewer System Conveyances (327 IAC 15-13). In case of conflicting requirements, the most restrictive shall apply.

#### **Sec. 116.108. Technical Standards**

The West Lafayette Board of Public Works and Safety has adopted a Tippecanoe County Stormwater Technical Standards Manual, a copy of which is incorporated herein by reference, which Manual as from time to time amended, shall

contain the technical standards for compliance with this ordinance (the Technical Standards).

#### **Sec. 116.109. Interpretation**

Words and phrases in this code shall be construed according to their common and accepted meanings, except that words and phrases defined in Appendix A, shall be construed according to the respective definitions given in that section. Technical words and technical phrases that are not defined in this code but which have acquired particular meanings in law or in technical usage shall be construed according to such meanings.

#### **Sec. 116.110. Severability**

The provisions of this code are hereby declared severable, and if any court of competent jurisdiction should declare any part or provision of this code invalid or unenforceable, such invalidity or unenforceability shall not affect any other part or provision of the code.

#### **Sec. 116.111. Disclaimer of Liability**

The degree of protection required by this code is considered reasonable for regulatory purposes and is based on historical records, engineering, and scientific methods of study. Larger storms may occur or stormwater runoff amounts may be increased by man-made or natural causes. This code does not imply that land uses permitted will be free from stormwater damage. This code shall not create liability on the part of the City of West Lafayette, West Lafayette Board of Public Works and Safety or any officer, representative, or employee thereof, for any damage that may result from reliance on this code or on any administrative decision lawfully made there under.

### **Article II. Prohibited Discharges and Connections**

#### **Sec. 116.201. Applicability and Exemptions**

This article shall apply to all discharges, including illegal dumping, entering the storm drain system under the control of the City of West Lafayette, regardless of whether the discharge originates from developed or undeveloped lands, and regardless of whether the discharge is generated from an active construction site or a stabilized site. These discharges include flows from direct connections to the storm drain system, illegal dumping, and contaminated runoff.

Stormwater runoff from agricultural, timber harvesting, and mining activities is exempted from the requirements of this article unless determined to contain pollutants not associated with such activities or in excess of standard practices. Farm residences are *not* included in this exemption.

Any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the

permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for the subject discharge to the storm drain system, is also exempted from this article.

Finally, any construction project which has had its drainage plan approved by the City of West Lafayette prior to the effective date of this code shall be exempt from all requirements of this code that are in excess of the requirements of codes in effect at the time of approval.

#### **Sec. 116.202. Prohibited Discharges and Connections**

No person shall discharge to a waterbody, directly or indirectly, any substance other than stormwater or an exempted discharge. Any person discharging stormwater shall effectively prevent pollutants from also being discharged with the stormwater, through the use of best management practices (BMPs).

The City of West Lafayette is authorized to require dischargers to implement pollution prevention measures, utilizing BMPs, necessary to prevent or reduce the discharge of pollutants into the City of West Lafayette stormwater drainage system.

#### **Sec. 116.203. Exempted Discharges and Connections**

The following categories of non-stormwater discharges or flows are exempted from the requirements of this article:

- (a) Water line flushing;
- (b) Landscape irrigation;
- (c) Diverted stream flows;
- (d) Rising ground waters;
- (e) Uncontaminated groundwater infiltration;
- (f) Discharges from potable water sources;
- (g) Air conditioning condensation;
- (h) Irrigation water;
- (i) Springs;
- (j) Residential and commercial lawn watering;
- (k) Individual residential car washing;
- (l) Flows from riparian habitats and wetlands;
- (m) Dechlorinated swimming pool discharges;
- (n) Street wash water;
- (o) Discharges from firefighting activities;
- (p) Naturally introduced detritus (e.g. leaves and twigs).

#### **Sec. 116.204. Storage of Hazardous or Toxic Material**

Storage or stockpiling of hazardous or toxic material within any drainageway, or in its associated floodway or floodplain, is strictly prohibited. Storage or stockpiling of hazardous or toxic material on active construction sites must include adequate protection and/or containment so as to prevent any such materials from entering any temporary or permanent stormwater conveyance or drainageway.

#### **Sec. 116.205. Private Property Maintenance Duties**

Every person owning property through which a drainageway passes, or such person's lessee, shall keep and maintain that part of the drainageway located within their property boundaries, free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

#### **Sec. 116.206. Spill Reporting**

Any discharger who accidentally discharges into a water body any substance other than stormwater or an exempted discharge shall immediately inform the Tippecanoe County Health Department and Tippecanoe County Emergency Management Agency concerning the discharge. A written report concerning the discharge shall be filed with the City Engineer, by the discharger(s), within five (5) days. The written report shall specify:

- (a) The composition of the discharge and the cause thereof;
- (b) The exact date, time, and estimated volume of the discharge;
- (c) All measures taken to clean up the accidental discharge, and all measures proposed to be taken to prevent any recurrence;
- (d) The name and telephone number of the person making the report, and the name of a person who may be contacted for additional information on the matter.

A properly reported accidental discharge shall be an affirmative defense to a civil infraction proceeding, for a first offence only, brought under this code against a discharger for such discharge. It shall not, however, be a defense to a legal action brought to obtain an injunction, to obtain recovery of costs or to obtain other relief because of or arising out of the discharge. A discharge shall be considered properly reported only if the discharger complies with all the requirements of this section.

#### **Sec. 116.207. Inspections and Monitoring**

- (a) Storm Drainage System

The City of West Lafayette will periodically inspect the portion of the storm drainage system under the City of West Lafayette's control, in an effort to detect and eliminate illicit connections and discharges into the system. This inspection will include a screening of discharges from outfalls connected to the system in order to determine if prohibited flows are being conveyed into the storm drainage system. It could also include spot testing of waters contained in the storm drainage system itself to detect the introduction of pollutants into the system by means other than a

defined outfall, such as dumping or contaminated sheet runoff.

(b) Potential Polluters

If, as a result of a storm drainage system inspection, a discharger is suspected of an illicit discharge, the City of West Lafayette may inspect and/or obtain stormwater samples from stormwater runoff facilities of the subject discharger, to determine compliance with the requirements of this code. Upon request, the discharger shall allow the City of West Lafayette's properly identified representative to enter upon the premises of the discharger at all hours necessary for the purposes of such inspection or sampling. The City of West Lafayette, or its properly identified representative, may place on the discharger's property, the equipment or devices used for such sampling or inspection. Identified illicit connections or discharges shall be subject to enforcement action as described in Article VII of this code.

(c) New Development and Re-Development

Following approval of final stormwater plans by the City of West Lafayette, new development and re-development sites shall be inspected by the City of West Lafayette's properly identified representative. This inspection will be to insure all on-site stormwater conveyances and connections to the storm drainage system are in compliance with this article.

### Article III. Stormwater Quantity Management

#### Sec. 116.301. Applicability and Exemptions

The storage and controlled release of excess stormwater runoff shall be required for all new business, commercial and industrial developments, residential subdivisions, planned developments, rural estate subdivisions, and any redevelopment or other new construction located within the City of West Lafayette. Possible exceptions to the requirement are minor subdivisions and parcelization as described in the Unified Subdivision Ordinance. The West Lafayette City Engineer, after thorough investigation and evaluation, may waive the requirement of controlled runoff for minor subdivisions and parcelization. Additional exemptions regarding the detention requirements are provided under Section 116.302.a.3 (below).

#### Sec. 116.302. Policy on Stormwater Quantity Management

(a) Detention Policy

It is recognized that most streams and drainage channels serving the City of West Lafayette do not have sufficient capacity to receive and convey stormwater runoff resulting from continued urbanization. Accordingly, except for situations

provided in items 3 and 4 of this section, the storage and controlled release of excess stormwater runoff shall be required for all developments and redevelopments located within the City of West Lafayette.

(1) General Release Rates

In general, the post-developed release rates from development sites shall be no greater than the general release rates provided in Table 3-1. For sites where the pre-developed area has more than one (1) outlet, the release rates should be computed based on pre-developed discharge to each outlet point.

TABLE 3-1

<b>General Release Rates (cfs/acre)</b> <b>Based on Pre-Developed Condition</b> <b>Curve Number at Each Outlet Point</b>		
<b>Curve Number</b>	<b>10-Year</b>	<b>100-Year</b>
≤ 65	0.07	0.23
66 – 69	0.13	0.33
70 – 73	0.20	0.43
74 – 77	0.27	0.53
78 – 81	0.34	0.63
82 – 85	0.44	0.75
≥ 86	0.55	0.87

For sites where depressional storage exists, the general release rates provided above may have to be further reduced. If depressional storage exists at the site, site-specific release rates must be calculated according to methodologies described in the Stormwater Technical Standards Manual (Technical Standards), accounting for the depressional storage by modeling it as a pond whose outlet is a weir at an elevation such that stormwater can currently overflow the depressional storage area. Post developed release rates for sites with depressional storage shall be the 2-year pre-developed peak runoff rate for the post-developed 10-

year storm and the 10-year pre-developed peak runoff rate for the post-developed 100-year storm. In no case shall the calculated site-specific release rates be larger than the general rates provided above.

Also, it should be noted that for determining the post-developed peak runoff rates, the depressional storage must be assumed to be filled unless the City Engineer can be assured that the noted storage will be preserved in perpetuity.

Runoff from all upstream tributary areas (off-site land areas) may be bypassed around the detention/retention facility without attenuation. Such runoff may also be routed through the detention/retention facility, provided that a separate outlet system or channel is incorporated for the safe passage of such flows, i.e., not through the primary outlet of a detention facility. Unless the pond is being designed as a regional detention facility, the primary outlet structure shall be sized and the invert elevation of the emergency overflow weir determined according to the on-site runoff only. Once the size and location of the primary outlet structure as well as the invert elevation of the emergency overflow weir is determined by considering on-site runoff, the 100-year pond elevation is determined by routing the entire inflow, on-site and off-site, through the pond.

Note that the efficiency of the detention/retention facility in controlling the on-site runoff may be severely affected if the off-site area is considerably larger than the on-site area. As a general guidance, on-line detention may not be effective in controlling on-site runoff where the ratio of off-site area to on-site area is larger than 5:1. Additional detention (above and beyond that required for on-site area) may be required by the City of West Lafayette when the ratio of off-site area to on-site area is larger than 5:1.

## (2) Downstream Restrictions

In the event the downstream receiving channel or storm sewer system is inadequate to accommodate the post-developed release rate provided above, then the allowable release rate shall be reduced to that rate permitted by the capacity of the receiving downstream channel or storm sewer system. Additional detention, as determined by the City of West Lafayette, shall be required to store that portion of the runoff exceeding the capacity of the receiving sewers or waterways.

If the proposed development makes up only a portion of the undeveloped watershed upstream of the limiting restriction, the allowable release rate for the development shall be in direct proportion to the ratio of its drainage area to the drainage area of the entire watershed upstream of the restriction.

In accordance with Section 116.608, the allowable release rates may be further reduced by the City of West Lafayette if on-site or off-site conditions warrant the reduction.

## (3) Exemptions for Detention Requirements

Detention may not be required for the following:

(A) Land alterations where the primary basis on which a stormwater drainage permit is required is the construction, enlargement, or location (on a permanent foundation) of a one-family dwelling, two-family dwelling, or accessory structure appurtenant to either a one- or two-family dwelling.

(B) Approved fill areas or one-time additions to existing commercial buildings (including multi-family residential structures) that do not increase the amount of impervious area on-site by more than a total of 0.5 acres, provided the existing runoff patterns and flow capacity of the property will not be altered by the work.

(C) Notwithstanding the provisions of subsection 2 (above), those site developments where the stormwater management system has been designed such that:

(i) after combining flows from both the off-site and on-site drainage areas, there will be no increase in the total peak discharge from the developed site during the 2-, 10-, or 100-year storm events; and

(ii) the volume of runoff for each project site outlet has not been increased for the entire range of storm events, up to and including the 100-year storm event; and

(iii) the flow width is greater than or equal to that flow width which existed prior to the development (for the entire range of storm events, up to and including the 100-year storm event) and the velocity at the property boundary line for each sub-basin is less than or equal to that velocity which existed prior to the development (for the entire range of storm events, up to and including the 100-year storm event).

(D) Where the direct release of runoff from the proposed development meets the conditions set forth in subsection 4 (below).

#### (4) Direct Release Provisions

It is the policy of the City of West Lafayette to allow the direct release (no detention) of runoff from a proposed development to an adjacent stream with more than 100 square miles of contributing drainage area at the direct release point. Therefore, direct release may be allowed for parcels adjacent to the following stream reaches in the City of West Lafayette:

- Wabash River – the entire reach within the County

Due to unknowns regarding the future development patterns and the associated proposed stormwater management systems within a watershed, it is the policy of the City of West Lafayette to discourage direct release to a stream with less than 100 square miles of contributing drainage area at the direct release point. However, in rare circumstances, where a comprehensive watershed-wide hydrologic study or watershed plan of a major stream adopted by the City of West Lafayette substantiates the benefits of (or allows for) direct release for a proposed development located adjacent to a major stream, the detention requirements set in Section 1 (above) may be waived.

In substantiating the potential benefits of direct release, the watershed-wide hydrologic study provided by the applicant must demonstrate that the peak discharge associated with 2-year, 10-year, and 100-year precipitation events would not increase along the receiving stream. At a minimum, the stream reach to be examined needs to extend from the direct release point to a point downstream with a drainage area at least ten (10) times the drainage area of the proposed development and its off-site contributing drainage area. The required analyses must be done both for the existing land use and future potential land use (developed conditions) in the watersheds involved.

To be applicable to the development site, the sub-basin sizes for the watershed-wide hydrologic analyses of the major stream (including the sub-basin area containing the proposed development and its off-site contributing areas) must be generally uniform (between 0.5 and 2.0 times the average sub-basin size). Furthermore, the maximum size of the sub-basin area containing the proposed development and its off-site contributing areas should not exceed 5.0 times the area of the proposed development.

#### (b) Grading and Building Pad Elevation Policy

Maximum yard slopes are 3:1 where soil has been disturbed during construction processes. Top of foundation must be no less than 6 inches above finished grade and a minimum of 15 inches above an adjacent road elevation unless a written variance is granted by the City of West Lafayette.

All structures located in the Special Flood Hazard Area (SFHA) as shown on the current Flood Insurance Rate Map (FIRM) or best available information as determined by the City Engineer.

The Lowest Adjacent Grade for residential buildings outside a FEMA or IDNR designated floodplain shall have two feet of freeboard above the flooding source's 100-year flood elevation under proposed conditions, unless the flooding source is a rear-yard swale. When the flooding source is a rear-yard swale, the Lowest Adjacent Grade for residential buildings shall have two feet of freeboard above the 100-year flood under proposed conditions or be separated by a minimum distance of 25 feet from the proposed-condition 100-year flood boundary.

The Lowest Adjacent Grade (including walkout basement floor elevation) for all residential buildings adjacent to ponds shall be set a minimum of 2 feet above the 100-year pond elevation or 2 feet above the emergency overflow weir elevation, whichever is higher.

Overflow paths throughout the development resulting from a 100-year storm event, shall be determined, clearly shown on the plans, and contained in permanent drainage easements with a minimum width of 30 feet along the centerline of the flow path. No fences or landscaping shall be constructed within the easement areas that may impede the free flow of stormwater. Building pad elevations for all residential, commercial, or industrial buildings adjacent to the overflow path shall be constructed at an elevation that provides at least 1 foot of freeboard above the anticipated overflow water surface elevations, using methodologies described in the Technical Standards.

It shall be the responsibility of the property owner to maintain and protect all the natural and man-made drainage features located on their property from erosion and deterioration.

#### (c) Adjoining Property Impacts Policy

Design and construction of the stormwater facility shall provide for the discharge of the stormwater runoff from off-site land areas as well as the stormwater from the area being developed (on-site land areas) to an acceptable outlet(s) (as determined by the City Engineer) having capacity to receive

upstream (off-site) and on-site drainage. The flow path from the development outfall(s) to a regulated drain or natural waterway (as determined by the City Engineer) shall be provided on an exhibit that includes topographic information. Any existing field tile encountered during the construction shall also be incorporated into the proposed stormwater drainage system or tied to an acceptable outlet. In addition, no activities conducted as part of the development shall be allowed to obstruct the free flow of flood waters from an upstream property.

Where the outfall from a stormwater drainage system of any developer flows through real estate not owned by the developer prior to reaching a regulated drain or natural waterway (as determined by the City Engineer), no approval shall be granted for the stormwater drainage system until all owners of real estate crossed by the outfall either consent in writing to the use of their real estate or are notified in writing of a hearing before the City of West Lafayette Board of Public Works and Safety with respect to the proposed use. Written notice of the time and place of the hearing shall be made by: 1) mailing a copy of the notice by registered or certified mail, return receipt requested to such person's residence, place of business or employment with return receipt requested and returned showing receipt of such notice; 2) delivering a copy of such notice to the owner; and/or such tenant personally. Such notice shall be personally delivered or mailed not less than seven (7) nor more than 14 days prior to the hearing. Proof of delivery of notice to each landowner shall be filed by affidavit with the City Engineer prior to the hearing.

If an adequate outlet is not located on site, then off-site drainage improvements may be required. Those improvements may include but are not limited to: extending storm sewers, clearing, dredging and/or removal of obstructions to open drains or natural water courses, and the removal or replacement of undersized culvert pipes as required by the City Engineer.

(d) No Net Loss Floodplain Storage Policy

Floodplains exist adjacent to all natural and man-made streams, regardless of contributing drainage area or whether they have been previously identified or mapped. Due to potential impacts of floodplain loss on peak flows in streams and on the environment, disturbance to floodplains should be avoided. When the avoidance of floodplain disturbance is not practical, the natural functions of floodplain should be preserved to the extent possible.

In an attempt to strike a balance between the legitimate need for economic development within the City of West Lafayette and the need to preserve

the natural functions of floodplains to the extent possible, compensatory excavation equivalent to the floodplain storage lost shall be required for all activities within floodplain of streams located in the City of West Lafayette where drainage area of the stream is equal or larger than one square mile. This requirement shall be considered to be above and beyond the minimum requirements provided in the Unified Zoning Ordinance in the City of West Lafayette.

Computations must show no net loss of floodplain storage for 10-year, 50-year, and 100-year storm events. That is, the post-development 10-year floodplain storage along a stream shall be the same as the 10-year pre-development floodplain storage along the stream within the property limits or at a location approved by the City of West Lafayette; The post-development 50-year floodplain storage along a stream shall be the same as the 50-year pre-development floodplain storage along the stream within the property limits or at a location approved by the City of West Lafayette, and the post-development 100-year flood plain storage along the stream shall be the same as the 100-year pre-development flood plain storage along the stream within the property limits or at a location approved by the City of West Lafayette.

**Sec. 116.303. Calculations, Design Standards and Specifications**

The calculation methods as well as the type, sizing, and placement of all stormwater facilities shall meet the design criteria, standards, and specifications outlined in the Technical Standards. The methods and procedures in the Technical Standards are consistent with the policy stated above.

**Sec. 116.304. Placement of Utilities**

No utility company may disturb existing storm drainage facilities without the consent of the City Engineer, whose decision may be appealed to the City of West Lafayette Board of Public Works and Safety. All existing drainage facilities shall have senior rights and damage to the facilities shall result in penalties as prescribed in article VII of this code.

**Sec. 116.305. Structures Near County Regulated Drains**

For Regulated Drains not located in platted subdivisions, unless otherwise approved by the Tippecanoe County Drainage Board, no permanent structure (including fences) shall be erected within the legal drain easement, as determined by the Tippecanoe County Drainage Board.

**Sec. 116.306. Inspection, Maintenance, Record Keeping, and Reporting**

After the approval of the stormwater management permit by the City Engineer and the commencement of construction activities, the City Engineer has the authority to conduct

inspections of the work being done to insure full compliance with the provisions of this article, the Technical Standards, and the terms and conditions of the approved permit.

Long term inspection and maintenance of stormwater quantity facilities shall be the responsibility of the City of West Lafayette. All public and privately owned stormwater quantity facilities will be inspected no less than once each year. The inspection will cover physical conditions, available storage capacity and the operational condition of key facility elements. Stormwater quantity facilities shall be maintained in good condition, in accordance with the terms and conditions of the approved stormwater management permit, and shall not be subsequently altered, revised or replaced except in accordance with the approved stormwater permit, or in accordance with approved amendments or revisions to the permit. If deficiencies are found during the inspection, the owner of the facility will be required to take all necessary measures to correct such deficiencies within 180 days. If the owner fails to correct the deficiencies within the allowed time period, the City of West Lafayette will undertake the work and collect from the owner using lien rights if necessary.

Assignment of responsibility for maintaining facilities serving more than one lot or holding shall be documented by appropriate covenants to property deeds, unless responsibility is formally accepted by a public body, and determined before the final stormwater permit is approved. Stormwater detention/retention basins may be donated to the City of West Lafayette or other unit of government designated by the City of West Lafayette, for ownership and permanent maintenance only if the City of West Lafayette or the other governmental unit has expressly accepted responsibility.

#### **Article IV. Stormwater Pollution Prevention for Construction Sites**

##### **Sec. 116.401. Applicability and Exemptions**

The City of West Lafayette will require a Stormwater Pollution Prevention Plan (SWPPP), which includes erosion and sediment control measures and materials handling procedures, to be submitted as part of the construction plans and specifications. Any project located within the City of West Lafayette that includes clearing, grading, excavation, and other land disturbing activities, resulting in the disturbance of one-half (0.5) acre or more of total land area, is subject to the requirements of this article. This includes both new development and re-development. This article also applies to disturbances of less than one-half (0.5) acre of land that are part of a larger common plan of development or sale if the larger common plan will ultimately disturb one-half (0.5) or more acres of land, within the MS4 area. Section 116.403 of this article provides guidelines for calculating land disturbance.

The requirements under this article do not apply to the following activities:

- agricultural land disturbing activities; or
- forest harvesting activities.

The requirements under this article do not apply to the following activities, provided other applicable state permits contain provisions requiring immediate implementation of soil erosion control measures:

- Landfills that have been issued a certification of closure under 329 IAC 10.
- Coal mining activities permitted under IND. CODE article 14-34.
- Municipal solid waste landfills that are accepting waste pursuant to a permit issued by the Indiana Department of Environmental Management under 329 IAC 10 that contains equivalent stormwater requirements, including the expansion of landfill boundaries and construction of new cells either within or outside the original solid waste permit boundary.

For an individual lot where land disturbance is expected to be one-half (0.5) acre or more, the individual lot owner must complete their own notice of intent letter, apply for a stormwater permit from the City of West Lafayette, and ensure that a sufficient construction and stormwater pollution prevention plan is completed and submitted in accordance with article VI of this code, regardless of whether the individual lot is part of a larger permitted project site.

An individual lot with land disturbance less than one-half (0.5) acre, located within a larger permitted project site, is considered part of the larger permitted project site, and the individual lot operator must comply with the terms and conditions of the stormwater permit approved for the larger project site. The stormwater permit application for the larger project site must include detailed erosion and sediment control measures for individual lots. These individual lots are not required to submit their own stormwater permit application, but must obtain a stormwater review approval prior to receiving a building permit. Details of the permitting process are contained in article VI.

It will be the responsibility of the project site owner to complete a stormwater permit application and ensure that a sufficient construction plan is completed and submitted to the City Engineer in accordance with article VI of this code. It will be the responsibility of the project site owner to ensure compliance with this code during the construction activity and implementation of the construction plan, until the City of West Lafayette receives and approves a Notice of Termination. However, all persons engaging in construction and land disturbing activities on a permitted project site meeting the applicability requirements must comply with the requirements of this article and this code and the approved permit and plan.

##### **Sec. 116.402. Policy on Stormwater Pollution Prevention**

Effective stormwater pollution prevention on construction sites is dependent on a combination of preventing movement of soil from its original position (erosion control), intercepting displaced soil prior to entering a waterbody (sediment control), and proper on-site materials handling. The

developer must submit to the City of West Lafayette, a Stormwater Pollution Prevention Plan (SWPPP) with detailed erosion and sediment control plans as well as a narrative describing materials handling and storage, and construction sequencing. The following principles apply to all land-disturbing activities and should be considered in the preparation of a SWPPP within the City of West Lafayette.

- (a) Minimize the potential for soil erosion by designing a development that fits the topography and soils of the site. Deep cuts and fills in areas with steep slopes should be avoided wherever possible, and natural contours should be followed as closely as possible.
- (b) Existing natural vegetation shall be retained and protected wherever possible. Areas immediately adjacent (within 35 feet of top of bank) to watercourses and lakes also should be left undisturbed wherever possible. Unvegetated areas or vegetated areas with less than 70% cover that are scheduled or likely to be left inactive for 15 days or more must be temporarily or permanently stabilized with measures appropriate for the season to reduce erosion potential. Alternative measures to site stabilization may be acceptable if the project site owner or their representative can demonstrate they have implemented and maintained erosion and sediment control measures adequate to prevent sediment discharge from the inactive area.
- (c) All activities on a site should be conducted in a logical sequence so that the smallest practical area of land will be exposed for the shortest practical period of time during development.
- (d) The length and steepness of designed slopes should be minimized to reduce erosion potential. Drainage channels and swales must be designed and adequately protected so that their final gradients and resultant velocities will not cause erosion in the receiving channel or at the outlet. Methods for determining acceptable velocities are included in the West Lafayette Stormwater Technical Standards.
- (e) Sediment-laden water which otherwise would flow from the project site shall be treated by erosion and sediment control measures appropriate to minimize sedimentation. A stable construction site access shall be provided at all points of construction traffic ingress and egress to the project site.
- (f) Appropriate measures shall be implemented to prevent wastes or unused building materials, including, garbage, debris, packaging material, fuels and petroleum products, hazardous materials or wastes, cleaning wastes, wastewater, concrete truck washout, and other substances from being carried from a project site by runoff or wind. Identification of areas where concrete truck washout is permissible must be clearly posted at appropriate areas of the site. Wastes and unused building materials shall be managed and disposed of in accordance with all applicable State statutes and regulations. Proper storage and handling of materials such as fuels or hazardous wastes, and spill prevention and cleanup measures shall be implemented to minimize the

potential for pollutants to contaminate surface or ground water or degrade soil quality.

- (g) Public or private roadways shall be kept cleared of accumulated sediment that is a result of runoff or tracking. Bulk clearing of accumulated sediment shall not include flushing the area with water. Cleared sediment shall be redistributed or disposed of in a manner that is in accordance with all applicable statutes and regulations.
- (h) Collected runoff leaving a project site must be either discharged directly into a well-defined, stable receiving channel, or diffused and released to adjacent property without causing an erosion or pollutant problem to the adjacent property owner.
- (i) Natural features, including wetlands, shall be protected from pollutants associated with stormwater runoff.
- (j) The SWPPP shall designate a paved or stoned area(s) for parking during construction to prevent site disturbance and the permittee shall require all contractors, subcontractors, material suppliers, and deliveries to use only the designated parking area(s).

#### **Sec. 116.403. Calculations, Design Standards and Specifications**

In calculating the total area of land disturbance, for the purposes of determining applicability of this article to the project, the following guidelines shall be used:

- (a) Off-site construction activities that provide services (for example, road extensions, sewer, water, and other utilities) to a land disturbing project site, must be considered as a part of the total land disturbance calculation for the project site, when the activity is under the control of the project site owner.
- (b) Strip developments will be considered as one (1) project site and must comply with this article unless the total combined disturbance on all individual lots is less than one-half (0.5) acre and is not part of a larger common plan of development or sale.
- (c) To determine if multi-lot project sites are regulated by this rule, the area of land disturbance shall be calculated by adding the total area of land disturbance for improvements, such as, roads, utilities, or common areas, and the expected total disturbance on each individual lot, as determined by the following:
  - (1) For a single-family residential project site where the lots are one-half (0.5) acre or more, one-half (0.5) acre of land disturbance must be used as the expected lot disturbance.
  - (2) For a single-family residential project site where the lots are less than one half (0.5) acre in size, the total lot must be calculated as being disturbed.
  - (3) To calculate lot disturbance on all other types of projects sites, such as industrial and commercial projects project sites, a minimum of one-half (0.5) acre of land disturbance must be used as

the expected lot disturbance, unless the lots are less than one-half (0.5) acre in size, in which case the total lot must be calculated as being disturbed.

The calculation methods as well as the type, sizing, and placement of all stormwater pollution prevention measures for construction sites shall meet the design criteria, standards, and specifications outlined in the *Indiana Stormwater Quality Manual* or the Technical Standards. The methods and procedures included in these two references are in keeping with the above stated policy and meet the requirements of IDEM's Rule 5.

#### **Sec. 116.404. Inspection, Maintenance, Record Keeping, and Reporting**

Following approval of the stormwater management permit by the City of West Lafayette and commencement of construction activities, the City Engineer has the authority to conduct inspections of the site to insure full compliance with the provisions of this article, the *Indiana Stormwater Quality Manual*, and the terms and conditions of the approved permit.

A self-monitoring program must be implemented by the project site owner to insure the stormwater pollution prevention plan is working effectively. A trained individual, as defined in the Technical Standards, shall perform a written evaluation of the project site by the end of the next business day following each measurable storm event. If there are no measurable storm events within a given week, the site should be monitored at least once in that week. Weekly inspections shall continue until the entire site has been stabilized and a Notice of Termination has been issued. The inspector should look at the maintenance of existing stormwater pollution prevention measures, including erosion and sediment control measures, drainage structures, and construction materials storage/containment facilities, to ensure they are functioning properly. The inspector shall also identify additional measures, beyond those originally identified in the stormwater pollution prevention plan, necessary to remain in compliance with all applicable statutes and regulations.

The resulting evaluation reports must include the name of the individual performing the evaluation, the date of the evaluation, problems identified at the project site, and details of maintenance, additional measures, and corrective actions recommended and completed. A form for documenting these inspections can be found in Appendix B of the Technical Standard.

The stormwater pollution prevention plan shall serve as a guideline for stormwater quality, but should not be interpreted to be the only basis for implementation of stormwater quality measures for a project site. The project site owner is responsible for implementing, in accordance with this article, all measures necessary to adequately prevent polluted stormwater runoff. Recommendations by the inspector for modified stormwater quality measures should be implemented.

Although self-monitoring reports do not need to be submitted to the City Engineer, the City Engineer has the right to request

complete records of maintenance and monitoring activities involving stormwater pollution prevention measures. All evaluation reports for the project site must be made available to the City Engineer, in an organized fashion, within forty-eight (48) hours of a request.

### **Article V. Stormwater Quality Management for Post-Construction**

#### **Sec. 116.501. Applicability and Exemptions**

In addition to the requirements of article IV, the stormwater pollution prevention plan, which is to be submitted to the City Engineer as part of the stormwater management permit application, must also include post-construction stormwater quality measures. These measures are incorporated as a permanent feature into the site plan and are left in place following completion of construction activities to continuously filter stormwater runoff from the stabilized site. Any project located within the City of West Lafayette that includes clearing, grading, excavation, and other land disturbing activities, resulting in the disturbance of one-half (0.5) acre or more of total land area, is subject to the requirements of this article. This includes both new development and re-development, and disturbances of less than one-half (0.5) acre of land that are part of a larger common plan of development or sale if the larger common plan will ultimately disturb one-half (0.5) or more acres of land, within the MS4 area.

The requirements under this article do not apply to the following activities:

- agricultural land disturbing activities; or
- forest harvesting activities; or
- construction activities associated with a single family residential dwelling disturbing less than 5 acres, when the dwelling is not part of a larger common plan of development or sale; or
- single family residential developments consisting of four or less lots; or
- a single-family residential strip development where the developer offers for sale or lease without land improvements and the project is not part of a larger common plan of development or sale; or
- individual building lots within a larger permitted project.

The requirements under this article do not apply to the following activities, provided other applicable state permits contain provisions requiring immediate implementation of soil erosion control measures:

- Landfills that have been issued a certification of closure under 329 IAC 10.
- Coal mining activities permitted under IC 14-34.
- Municipal solid waste landfills that are accepting waste pursuant to a permit issued by the Indiana Department of Environmental Management under 329 IAC 10 that

contains equivalent stormwater requirements, including the expansion of landfill boundaries and construction of new cells either within or outside the original solid waste permit boundary.

It will be the responsibility of the project site owner to complete a stormwater permit application and ensure that a sufficient construction plan is completed and submitted to the City Engineer in accordance with article VI of this code. It will be the responsibility of the project site owner to ensure proper construction and installation of all stormwater BMPs in compliance with this code and with the approved stormwater management permit, and to notify the City Engineer with a sufficient Notice of Termination upon completion of the project and stabilization of the site. However, all eventual property owners of stormwater quality facilities meeting the applicability requirements must comply with the requirements of this article and this code.

#### **Sec. 116.502. Policy on Stormwater Quality Management**

It is recognized that developed areas, as compared to undeveloped areas, generally have increased imperviousness, decreased infiltration rates, increased runoff rates, and increased concentrations of pollutants such as fertilizers, herbicides, greases, oil, salts and other pollutants. As new development and re-development continues in the City of West Lafayette measures must be taken to intercept and filter pollutants from stormwater runoff prior to reaching regional creeks, streams, and rivers in order to preserve fishable and swimmable conditions. Through the use of Best Management Practices (BMP), stormwater runoff will be filtered and harmful amounts of sediment, nutrients and contaminants will be removed.

The project site owner must submit to the City Engineer, a Storm Water Pollution Prevention Plan (SWPPP) which shows placement of appropriate BMP(s) from a pre-approved list of BMPs specified in the *Indiana Stormwater Quality Manual* or the Technical Standards. The noted BMPs must be designed, constructed, and maintained according to guidelines provided or referenced in the *Indiana Stormwater Quality Manual* or the Technical Standards. Practices other than those specified in the pre-approved list may be utilized. However, the burden of proof, as to whether the performance and ease of maintenance of such practices will be according to guidelines provided in the *Indiana Stormwater Quality Manual* or the Technical Standards, shall be placed with the applicant. Details regarding the procedures and criteria for consideration of approval of such BMPs are provided in the Technical Standards.

Requirements of this code and the Technical Standards with regard to post-construction stormwater quality management can be satisfied through a variety of methods broadly categorized under two general approaches:

1. Conventional Approach
2. Low Impact Development (LID) Approach

The site developer and designer are encouraged to review the LID discussion in the Technical Standards prior to site design.

Gasoline outlets and refueling areas must install appropriate practices to reduce lead, copper, zinc, and polyaromatic hydrocarbons in stormwater runoff. These requirements will apply to all new facilities and existing facilities that replace their tanks.

#### **Sec. 116.503. Calculations, Design Standards and Specifications**

Calculation of land disturbance shall follow the guidelines discussed in section 116.403.

The calculation methods as well as the type, sizing, and placement of all stormwater quality management measures, or BMPs shall meet the design criteria, standards, and specifications outlined in the *Indiana Stormwater Quality Manual* or the Technical Standards. The methods and procedures included in these two references are in keeping with the above stated policy and meet the requirements of IDEM's Rule 13.

#### **Sec. 116.504. Easement Requirements**

All stormwater quality management systems, including detention or retention basins, filter strips, pocket wetlands, in-line filters, infiltration systems, conveyance systems, structures and appurtenances located outside of the right-of-way shall be incorporated into permanent easements or included in a Master Covenant and Agreement.

#### **Sec. 116.505. Inspection, Maintenance, Record Keeping, and Reporting**

After the approval of the stormwater management permit by the City of West Lafayette and the commencement of construction activities, the City Engineer has the authority to conduct inspections of the work being done to ensure full compliance with the provisions of this article, the Technical Standards or *Indiana Stormwater Quality Manual*, and the terms and conditions of the approved permit. The inspections will cover physical conditions, available water quality volume capacity, and the operational condition of key facility elements.

Stormwater quality facilities shall be maintained in good condition, in accordance with the Operation and Maintenance Manual. This Manual shall not be subsequently altered, revised or replaced except in accordance with the approved stormwater permit, or in accordance with approved amendments or revisions in the permit. Following completion of construction and formal acceptance, inspection and maintenance of publicly owned stormwater quality facilities shall be the responsibility of the City of West Lafayette. Inspection and maintenance of privately owned stormwater quality facilities shall be the responsibility of the owner.

All stormwater quality facilities will be inspected by representatives of the project site owner until the project is complete and a Notice of Termination has been approved.

Inspection frequency shall follow specifications included in the Operation and Maintenance Manual submitted as part of the permit application. Optional inspection checklists for some of the more common BMPs can be found in Appendix B of the Technical Standards. Following project completion, the owner is responsible for inspection and maintenance of the stormwater quality facilities. The City of West Lafayette has the authority to conduct inspections following project completion to ensure full compliance with the provisions of this article. Noted deficiencies and recommended corrective action will be included in an inspection report. If deficiencies are found during the inspection, the owner of the stormwater quality facility will be notified by the City Engineer and will be required to take all necessary measures to correct such deficiencies. If the owner fails to correct the deficiencies within the allowed time period, as specified in the notification letter, the City of West Lafayette will undertake the work and collect from the owner using lien rights if necessary.

## **Article VI. Permit Requirements and Procedures**

### **Sec. 116.601. Preliminary Drainage Approvals**

In order to gain an understanding of the drainage requirements for a specific project, a developer may submit preliminary drainage plans and calculations, certified by a licensed professional engineer or a licensed land surveyor registered in the State of Indiana, for review by the City Engineer. A preliminary drainage approval may be obtained prior to preliminary plat approval for subdivisions. The direction provided by the City Engineer during such a review is based on preliminary data and shall not be construed as an approval or binding on either party. The following is a general listing of minimum data requirements for the review of preliminary drainage plans:

- (a) Two (2) complete sets of plans.
- (b) Drainage Narrative.
- (c) Watershed Boundaries with USGS Contours or best information possible.
- (d) Existing regulated drains.
- (e) Drainage Calculations to support narrative:
  - (1) Existing and proposed runoff
  - (2) Existing and proposed curve number
  - (3) Existing and proposed time of concentration
  - (4) Upstream and downstream restrictions
- (f) Proof of Notification for obtaining any needed consents, off-site easements, or right-of-way, if required.
- (g) Topographic map of the project with layout.
- (h) A copy of the foregoing information in digital format acceptable to the City Engineer.

### **Sec. 116.602. Permit Procedures**

This section applies to all development, or re-development of land that results in land disturbance of one-half (0.5) acre or more. Individual lots with land disturbance less than one half

(0.5) acre, which are developed within a larger permitted project site, should refer to Section 116.604 for plan review requirements and procedures.

Figure 1 is a flowchart summarizing the plan review/permit approval process and can be found at the end of this article.

#### **(a) Inside the MS4 Boundary Area**

For projects located within the MS4 area boundary, as shown in Appendix B, the project site owner shall submit an application for a stormwater management permit to the City Engineer. The application will include a Notice of Intent letter (NOI), proof of public notice, construction plan sheets, stormwater drainage technical report, a stormwater pollution prevention plan, and any other necessary support information. Specific information to be included in the application can be found in Section 116.603 below. Two copies of each application must be submitted to the City Engineer. Additionally, a digital copy of the construction plans is required in a format approved by the City Engineer.

Within 10 days of the City Engineer's receipt of the application, the applicant will be notified as to whether its application was complete or insufficient. The applicant will be asked for additional information if the application is insufficient. If the application is complete, the City Engineer will forward one copy of the application to the Soil and Water Conservation District for its review and comment. The remaining three copies will be reviewed by departments within the City of West Lafayette. Once all comments have been received, or 10 work days have elapsed, the City Engineer will either approve the project, request modifications, or place the project on the agenda of the next scheduled meeting of the West Lafayette Board of Public Works and Safety. If the project must go through a scheduled meeting, the City Engineer will furnish the applicant a complete list of comments and objections to the plans and accompanying data, at least 10 days prior to the scheduled meeting. Within 10 days after the scheduled meeting, the City of West Lafayette will either issue a permit, deny the permit or request modifications to the construction plans. Once a permit has been issued, construction can commence.

The project site owner must notify the City Engineer and IDEM 48 hours before beginning construction. Notification shall be in the form of an updated NOI. Once construction starts, the project owner shall monitor construction activities and inspect all stormwater pollution prevention measures in compliance with this code and the terms and conditions of the approved permit. Upon completion of construction activities, as-built plans must be submitted to the City Engineer. A Notice of Termination (NOT) shall be sent to the City Engineer once the construction site has been

stabilized and all temporary erosion and sediment control measures have been removed. The City Engineer, or representative, shall inspect the construction site to verify the requirements for an NOT have been met.

Once the applicant receives a “verified” copy of the NOT, they must forward a copy to IDEM. Permits issued under this scenario will expire 5 years from the date of issuance. If construction is not completed within 5 years, the NOI must be resubmitted at least 90 days prior to expiration. No additional Rule 5 (327 IAC 15-5) permit is required from IDEM for projects within the MS4 area boundary since the City of West Lafayette is permitting authority.

(b) Both Inside and Outside the MS4 Area Boundary

For projects that are partially within the MS4 Area Boundary and partially outside the MS4 Area Boundary, the project site owner must comply with both Rule 5 and this code. The application procedure must follow the requirements of subsection “a” above and the requirements of Rule 5.

**Sec. 116.603. Information Requirements**

Specific projects or activities may be exempt from all or part of the informational requirements listed below. Exemptions are detailed in the “Applicability and Exemptions” Sections of articles II through V. If a project or activity is exempt from any or all requirements of this code, an application should be filed listing the exemption criteria met, in lieu of the information requirements listed below. This level of detailed information is not required from individual lots, in residential subdivisions with land disturbance less than one-half (0.5) acre of land, which are developed within a larger permitted project site. Review and approval of such lots is covered under Section 116.604 of this article.

The different elements of a permit submittal include a Notice of Intent (NOI), proof of publication of a public notice, construction plans, a stormwater drainage technical report, a stormwater pollution prevention plan for active construction sites, a post-construction stormwater pollution prevention plan, and any other necessary supporting information. An optional application form can be found in Appendix B of the Technical Standards.

(a) Notice of Intent

The NOI is a standard form developed by the Indiana Department of Environmental Management (IDEM) which requires general project information. A blank copy of the NOI can be found in Appendix B of the Technical Standards, or on IDEM’s webpage. The NOI shall be completed in full and accompanied by proof of publication in a newspaper of general circulation, in the affected area, that notifies the public that a construction activity is to

commence. The publication must include the following language:

“(Company name, address) is submitting an NOI letter to notify the City of West Lafayette and the Indiana Department of Environmental Management of our intent to comply with the requirements of the West Lafayette Drainage Code, as well as the requirements of 327 IAC 15-5 and 327 IAC 15-13, to discharge stormwater from construction activities for the following project: (name of the construction project, address of the location of the construction project). Run-off from the project site will discharge to (stream(s) receiving the discharge(s)).”

During construction, a copy of the completed NOI shall be posted by the project site owner near the main entrance of the project site.

(b) Construction Plans

Construction plan sheets and an accompanying narrative report shall describe and depict the existing and proposed conditions. Construction plans need to include the following detailed items:

- (1) Project narrative and supporting documents, including the following information:
  - (A) An index indicating the location, in the construction plans, of all information required by this subsection.
  - (B) Description of the nature and purpose of the project.
  - (C) Legal description of the project site. The description should be to the nearest quarter section, township, and range, and include the civil township.
  - (D) Soil properties, characteristics, limitations, and hazards associated with the project site and the measures that will be integrated into the project to overcome or minimize adverse soil conditions.
  - (E) General construction sequence of how the project site will be built, including phases of construction.
  - (F) 14-Digit Watershed Hydrologic Unit Code.
  - (G) A reduced plat or project site map showing the lot numbers, lot boundaries, and road layout and names. The reduced map must be legible and submitted on a sheet or sheets no larger than eleven (11) inches by seventeen (17) inches for all phases or sections of the project site.

- (H) A general site plan exhibit with the proposed construction area superimposed on a county GIS ortho-aerial map at a scale of 1"=100'. The exhibit should provide 2-foot contour information and include all roads and buildings within a minimum 500' radius beyond the project boundaries.
  - (I) Identification of any other state or federal water quality permits that are required for construction activities associated with the owner's project site.
- (2) Vicinity map depicting the project site location in relationship to recognizable local landmarks, towns, and major roads, such as a USGS topographic quadrangle map, or county or municipal road map.
- (3) An existing project site layout that must include the following information:
- (A) Location, name, and normal water level of all wetlands, lakes, ponds, and water courses on, or adjacent to, the project site.
  - (B) Location of all existing structures on the project site.
  - (C) One hundred (100) year floodplains, floodway fringes, and floodways. Please note if none exists.
  - (D) Soil map of the predominant soil types, as determined by the United States Department of Agriculture (USDA), Natural Resources Conservation Services (NRCS) Soil Survey, or as determined by a soil scientist. Hydrologic classification for soils should be shown when hydrologic methods requiring soils information are used. A soil legend must be included with the soil map.
  - (E) Identification and delineation of vegetative cover such as grass, weeds, brush, and trees on the project site.
  - (F) Location of storm, sanitary, combined sewer, and septic tank systems and outfalls.
  - (G) Land use of all adjacent properties.
  - (H) Identification and delineation of sensitive areas.
  - (I) Existing topography at a contour interval appropriate to indicate drainage patterns.
  - (J) The location of regulated drains, farm drains, inlets and outfalls, if any of record.
- (4) Final project site layout, including the following information:
- (A) Location of all proposed site improvements, including roads, utilities, lot delineation and identification, proposed structures, and common areas.
  - (B) One hundred (100) year floodplains, floodway fringes, and floodways. Please note if none exists.
  - (C) Proposed final topography at a contour interval appropriate to indicate drainage patterns.
- (5) A grading plan, including the following information:
- (A) Delineation of all proposed land disturbing activities, including off-site activities that will provide services to the project site.
  - (B) Location of all soil stockpiles and borrow areas.
  - (C) Information regarding any off-site borrow, stockpile, or disposal areas that are associated with a project site, and under the control of the project site owner.
  - (D) Existing and proposed topographic information.
- (6) A drainage plan, including the following information:
- (A) An estimate of the peak discharge, based on the ten (10) year storm 24-hour event, of the project site for both pre-construction and post-construction conditions.
  - (B) Calculation showing peak runoff rate after development for the 10-year and 100-year return period storms of critical duration do not exceed the 2-year and 10-year return period pre-development peak runoff rates, respectively.
  - (C) Location, size, and dimensions of all existing streams to be maintained, and new drainage systems such as culverts, bridges, storm sewers, and conveyance channels, along with all associated easements.
  - (D) Locations where stormwater may be directly discharged into groundwater, such as abandoned wells or sinkholes. Please note if none exists.
  - (E) Locations of specific points where stormwater discharge will leave the project site.
  - (F) Name of all receiving waters. If the discharge is to a separate municipal storm sewer, identify the name of the

municipal operator and the ultimate receiving water.

- (G) Location, size, and dimensions of features such as permanent retention or detention facilities, including natural or constructed wetlands, used for the purpose of stormwater management. Include existing retention or detention facilities that will be maintained, enlarged, or otherwise altered and new ponds or basins to be built and the basis of their design.
- (H) The estimated depth and amount of storage required by design of the new ponds or basins.
- (I) One or more typical cross sections of all existing and proposed channels or other open drainage facilities carried to a point above the 100-year high water and showing the elevation of the existing land and the proposed changes, together with the high water elevations expected from the 100 year storm under the controlled conditions called for by this code, and the relationship of structures, streets, and other facilities.

(c) Stormwater Drainage Technical Report

A written stormwater drainage technical report must contain a discussion of the steps taken in the design of the stormwater drainage system. The technical report needs to include the following detailed items:

- (1) A summary report, including the following information:
  - (A) The significant drainage problems associated with the project;
  - (B) The analysis procedure used to evaluate these problems and to propose solutions;
  - (C) Any assumptions or special conditions associated with the use of these procedures, especially the hydrologic or hydraulic methods;
  - (D) The proposed design of the drainage control system; and
  - (E) The results of the analysis of the proposed drainage control system showing that it does solve the project's drainage problems. Any hydrologic or hydraulic calculations or modeling results must be adequately cited and described in the summary description. If hydrologic or hydraulic models are used, the input and output files for all necessary runs must be included in the appendices. A map showing any

drainage area subdivisions used in the analysis must accompany the report.

- (2) A Hydrologic/Hydraulic Analysis, consistent with the methodologies and calculation included in the Technical Standards, and including the following information:

- (A) A hydraulic report detailing existing and proposed drainage patterns on the subject site. The report shall include a description of present land use and proposed land use. Any off-site drainage entering the site should be addressed as well. This report should be comprehensive and detail all of the steps the engineer took during the design process.
- (B) All hydrologic and hydraulic computations should be included in the submittal. These calculations shall include, but are not limited to: runoff curve numbers and runoff coefficients, runoff calculations, stage-discharge relationships, times-of-concentration and storage volumes.
- (C) Copies of all computer runs. These computer runs should include both the input and the outputs. Electronic copies of the computer runs with input files will expedite the review process.
- (D) A set of exhibits should be included showing the drainage sub-areas and a schematic detailing of how the computer models were set up.
- (E) A conclusion which summarizes the hydraulic design and details how this design satisfies this code.

(d) Stormwater Pollution Prevention Plan for Construction Sites

A stormwater pollution prevention plan associated with construction activities must be designed to, at least, meet the requirements of this code and technical standards, and must be provided on the construction plans with the following information:

- (1) Location, dimensions, detailed specifications, and construction details of all temporary and permanent stormwater quality measures.
- (2) Temporary stabilization plans and sequence of implementation.
- (3) Permanent stabilization plans and sequence of implementation.
- (4) Temporary and permanent stabilization plans shall include the following:

- (A) Specifications and application rates for soil amendments and seed mixtures.

(B) The type and application rate for anchored mulch.

- (5) Construction sequence describing the relationship between implementation of stormwater quality measures and stages of construction activities.
- (6) A typical erosion and sediment control plan for individual lot development.
- (7) Self-monitoring program including plan and procedures.
- (8) A description of potential pollutant sources associated with the construction activities, which may reasonably be expected to add a significant amount of pollutants to stormwater discharges.
- (9) Material handling and storage associated with construction activity shall meet the spill prevention and spill response requirements in 327 IAC 2-6.1.

(e) Post-Construction Storm Water Pollution Prevention Plan

The post-construction storm water pollution prevention plan must be provided on the construction plan and include the following information:

- (1) A description of potential pollutant sources from the proposed land use, which may reasonably be expected to add a significant amount of pollutants to stormwater discharges.
- (2) Location, dimensions, detailed specifications, and construction details of all post-construction stormwater quality measures.
- (3) A description of measures that will be installed to control pollutants in stormwater discharges that will occur after construction activities have been completed. Such practices include infiltration of run-off, flow reduction by use of open vegetated swales and natural depressions, buffer strip and riparian zone preservation, filter strip creation, minimization of land disturbance and surface imperviousness, maximization of open space, and stormwater retention and detention ponds.
- (4) A sequence describing when each post-construction stormwater quality measure will be installed.
- (5) Stormwater quality measures that will remove or minimize pollutants from stormwater run-off.
- (6) Stormwater quality measures that will be implemented to prevent or minimize adverse impacts to stream and riparian habitat.
- (7) A narrative description of the maintenance guidelines for all post-construction stormwater quality measures to facilitate their proper long term function.

(f) Operation and Maintenance Manual

- (1) This Operation and Maintenance Manual will be kept on file by the City of West Lafayette for use during inspections. A copy will also be provided to the landowner for inspection and maintenance purposes.
- (2) Suggested inspection and maintenance guidelines to be used in the Manual for various post-construction stormwater quality measures can be found in the Technical Standards appendices.

**Sec. 116.604. Review of Individual Lots Within a Permitted Project**

Although no permit is required for individual lots that disturb less than one-half 0.5 acre in residential subdivisions, a formal stormwater review will be required before a building permit can be issued. All stormwater management measures necessary to comply with this code must be implemented in accordance with the permitted plan for the larger project.

The following information must be submitted for review and approval, to the City of West Lafayette, by the individual lot operator, whether owning the property or acting as the agent of the property owner, prior to the issuance of a building permit.

- (a) A site layout for the subject lot and all adjacent lots showing building pad location, dimensions, and elevations, and the drainage patterns and swales.
- (b) Erosion and sediment control plan that, at a minimum, includes the following measures:
  - (1) Installation and maintenance of a stable construction site access.
  - (2) Installation and maintenance of appropriate perimeter erosion and sediment control measures prior to land disturbance.
  - (3) Minimization of sediment discharge and tracking from the lot with designation of paved or stoned parking for contractors and subcontractors.
  - (4) Clean-up of sediment that is either tracked or washed onto roads. Bulk clearing of sediment shall not include flushing the area with water. Cleared sediment must be redistributed or disposed of in a manner that is in compliance with all applicable statutes and rules.
  - (5) Adjacent lots disturbed by an individual lot operator must be repaired and stabilized with temporary or permanent surface stabilization.
  - (6) Self-monitoring program including plan and procedures.
- (c) Certification stating that the individual lot plan is consistent with the stormwater management permit, as approved by the City of West Lafayette, for the larger project.

The individual lot operator is responsible for installation and maintenance of all erosion and sediment control measures

until the site is stabilized. A typical erosion and sediment control plan for individual lots can be found in the City of West Lafayette standard drawings. The form for certifying compliance with the stormwater management plan for the larger project can be found in Appendix B of the Technical Standards.

#### **Sec. 116.605. Changes to Plans**

Any significant change or deviation in the detailed plans and specifications after approval of the stormwater management permit shall be filed in duplicate with, and approved by, the City Engineer prior to the land development involving the change. Copies of the changes, if approved, shall be attached to the original plans and specifications.

If during construction field conditions warrant changes to the stormwater pollution prevention plan associated with construction activities, these changes must be included as handwritten notes and drawings on the on-site field office construction plans within seven (7) days of the respective changes.

#### **Sec. 116.606. Fee Structure**

(a) Fee Amount

As a condition of the submittal and the review of development plans by the City Engineer, the applicant shall agree to pay the City of West Lafayette the actual costs incurred by the City of West Lafayette with respect to the review of all drainage submittals, preliminary plans, final plans, and/or construction plans and accompanying information and data. The applicant shall also agree to pre-pay the City of West Lafayette for inspection services provided for post construction BMPs. The amount shall be sufficient to conduct inspections for a period of three years following the Notice of Termination.

(c) Time Of Payment

Upon approval of the applicant's final stormwater management plan, the City Engineer will furnish a written statement to the applicant specifying the total cost of professional engineering fees incurred by the City of West Lafayette in connection with the review of the applicant's submittals, plans and accompanying information and data, including the total hours expended by such professional engineer and support staff, and the amount required to be paid by applicant.

As a condition of approval of final drainage plans by the City of West Lafayette, applicant shall pay to the City of West Lafayette the sum set forth in the statement. The City of West Lafayette may issue such a billing statement before the project advances to the final approval stage, and such payment is due by applicant upon receipt of said billing statement regardless of whether the project is advanced to the final approval stage.

The City of West Lafayette shall have the right to not accept the drainage improvements or to not approve the advancement of any project for which the professional engineering fees have not been paid.

(d) Method Of Payment

Fees shall be paid by one of the following methods:

- Certified Check
- Cashier's Check
- Money Order

All checks shall be made payable to the: City of West Lafayette, 609 West Navajo Street, West Lafayette, IN 47906.

(e) Refund Of Payment

Fees are refundable only if the City of West Lafayette determines that compliance with this Code is not necessary.

#### **Sec. 116.607. Required Assurances**

As a condition of approval and issuance of the permit, the City of West Lafayette shall require the applicant to provide assurance in form of a performance bond, certified check, irrevocable letters of credit, or certificate of deposit before construction begins. If posting an assurance in accordance with the Unified Subdivision Ordinance, Section 4.1(2), the amount of the assurance must be made out to the Area Plan Commission, and must include 150% of the estimated cost of implementing measures required articles III, IV, and V of this code. If no assurance is required under the Unified Subdivision Ordinance, Section 4.1, this code still requires an assurance, made out to the City of West Lafayette, for an amount equal to 150% of the total costs of implementing measures required by articles III, IV, and V of this code. If, following assurance made to the City of West Lafayette, the Area Plan Commission determines assurance is required by the Subdivision Ordinance, the assurance is transferable.

The assurance will guarantee a good faith execution of the stormwater drainage plan, the stormwater pollution prevention plan, the stormwater quality management plan, and any permit conditions. The costs shall be for the installation and continuous monitoring and maintenance of erosion control measures and the construction and continuous monitoring and maintenance of storm drainage infrastructure, detention/retention facilities, and stormwater quality BMPs, as regulated under this code. Local governmental jurisdictions may require additional performance and/or maintenance assurances. The intent of this assurance is not only to complete the installation of storm drain infrastructure for the project, but also to insure that adequate stormwater pollution prevention measures are properly installed and maintained.

#### **Sec. 116.608. Terms and Conditions of Permits**

In granting a stormwater management permit, the City Engineer may impose such terms and conditions as are reasonably necessary to meet the purposes of this code. The project site owner shall insure compliance with such terms and

conditions. Non-compliance with the terms and conditions of permits will be subject to enforcement as described in article VII.

The project site owner shall inform all general contractors, construction management firms, grading or excavating contractors, utility contractors, and the contractors that have primary oversight on individual building lots of the terms and conditions of the stormwater management permit and the schedule for proposed implementation.

In the event that a project site is determined to impact or discharge to a Sensitive Area or is located in an Impact Drainage Area, the City Engineer may require more stringent stormwater quantity and quality measures than detailed in this Code or in the *Indiana Stormwater Quality Manual*.

(a) Determination of Sensitive Areas

Sensitive Areas include, but are not limited to, highly erodible land, wetlands, threatened or endangered species habitat, outstanding waters, impaired waters, recreational waters, wellhead protection areas, and surface drinking water sources. A listing of highly erodible land, outstanding waters, impaired water, and recreation waters, can be found in the glossary in Appendix A. There are no surface drinking water sources in Tippecanoe County. If wetlands are suspected on a site, a wetland delineation shall be completed in accordance with the methodology established by the U.S. Army Corps of Engineers (COE). The presence of threatened or endangered species habitat will be determined by the City Engineer during the permit review process. Special terms and conditions for development determined to impact or discharge to any Sensitive Area shall be included in the stormwater management permit.

(b) Determination Of Impact Drainage Areas

The City Engineer is authorized, but is not required, to classify certain geographical areas as Impact Drainage Areas. In determining Impact Drainage Areas, the City Engineer shall consider such factors as topography, soil type, capacity of existing drains, and distance from adequate drainage facility. The following areas shall be designated as Impact Drainage Areas, unless good reason for not including them is presented to the City Engineer.

- (1) A floodway or floodplain as designated by the most updated the Unified Zoning Ordinance dealing with floodplain regulation.
- (2) Land within a legal drain easement.

Land that does not have an adequate outlet, taking into consideration the capacity and depth of the outlet, may be designated as an Impact Drainage Area by the City Engineer. Special terms and conditions for development within

any Impact Drainage Area shall be included in the stormwater management permit.

The City Engineer is authorized to review permit applications and, based upon the same, grant exemptions from any and all requirements of this code and/or waive any requirements of this code. Any applicant may appeal the decision of the City Engineer to the West Lafayette Board of Public Works which shall also be authorized to grant exemptions from any and all requirements of this code and/or waive any requirements of this code in its discretion.

**Sec. 116.609. Certification of As-Built Plans**

After completion of construction of the project and before final approval of the stormwater management plan, a professionally prepared and certified 'as-built' set of plans shall be submitted to the City Engineer for review. A checklist detailing the required as-built data is included in the Technical Standards appendices. Additionally, a digital copy of the 'as-built' plans is required in a format approved by the City Engineer.

The property owner, developer, or contractor shall be required to file a three-year maintenance bond or other acceptable guarantee with the City of West Lafayette, prior to final approval, in an amount not to exceed ten percent (10%) of the cost of the stormwater drainage system located outside the public road right-of-ways, and in a form satisfactory to the City of West Lafayette's attorney in order to assure that such stormwater system installation was done according to standards of good workmanship, that the materials used in the construction and installation were of good quality and construction, and that such project was done in accordance with the approved plans, and this code. The bond or other acceptable guarantee shall be in effect for a period of three years after the date of the final project approval by the City of West Lafayette.

The maintenance bond or other acceptable guarantee shall further be conditioned upon owner or developer or contractor satisfactorily completing, within three years following final approval of the storm water plans, such corrective actions as the City of West Lafayette may determine are reasonably necessary to remedy any damages to upstream or downstream channels or storm sewers resulting from the as-built development of the project.

Figure 6-1: Permit Approval Process

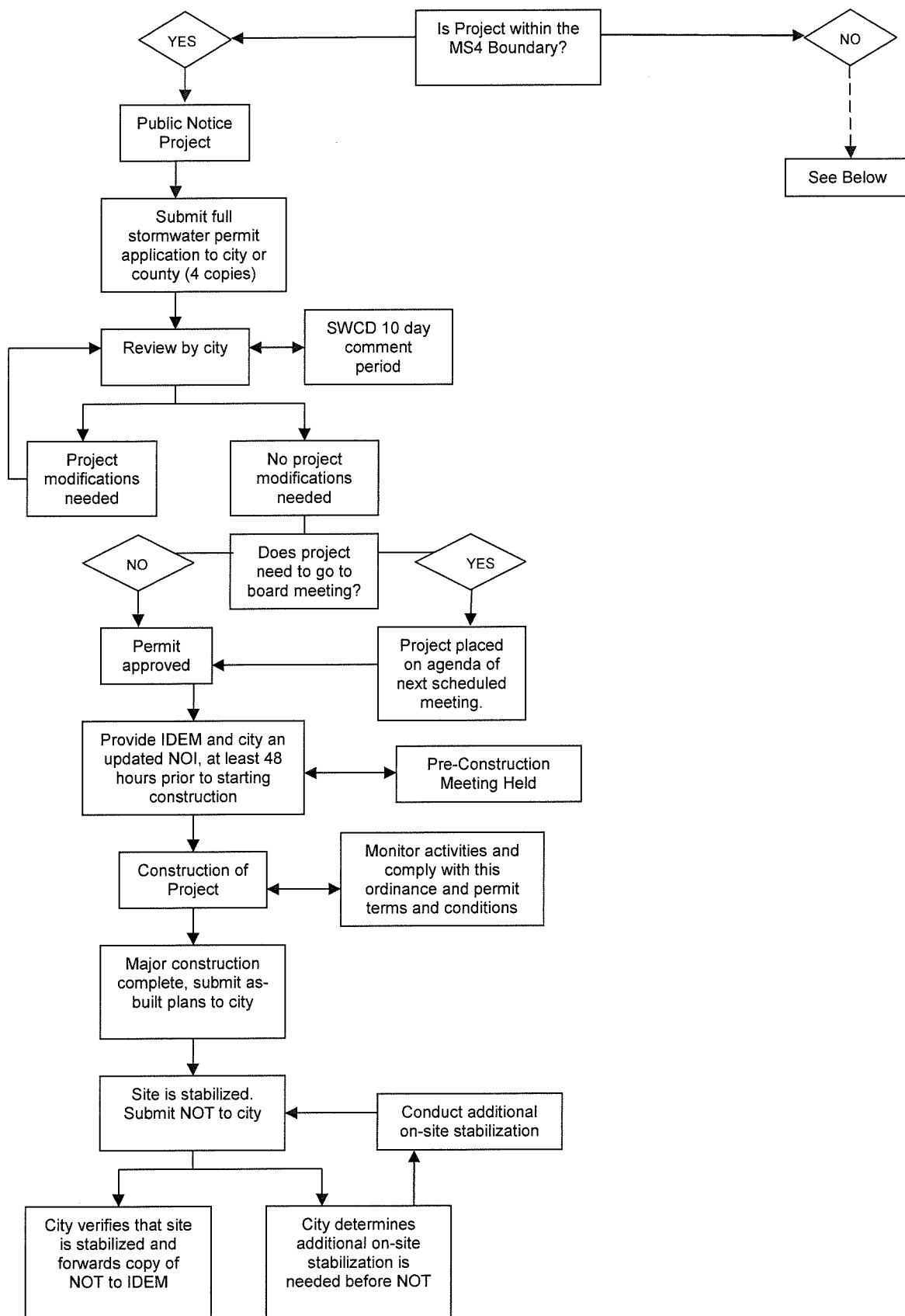
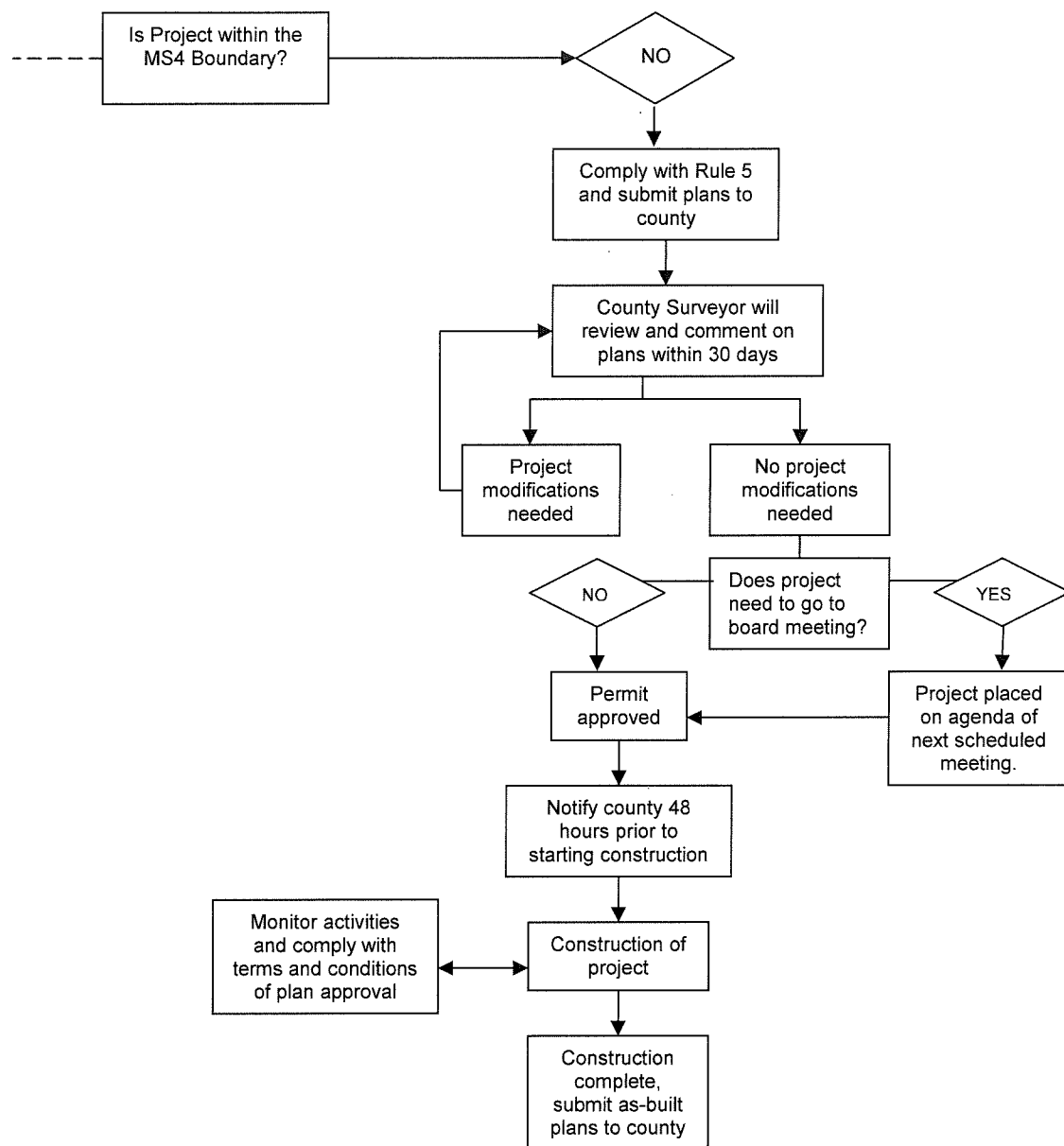


Figure 6-1: Permit Approval Process (cont.)



## **Article VII. Enforcement**

### **Sec. 116.701. Compliance With This Code**

In addition to the requirements of this code, compliance with the requirements set forth in the Unified Zoning Ordinance is also necessary. Compliance with the West Lafayette City Code as well as with applicable State of Indiana statutes and regulations shall also be required. Unless otherwise stated, all other specifications referred to in this code shall be the most recent edition adopted.

Violations of the requirements of this code are subject to the penalties listed below.

### **Sec. 116.702. Penalties for Violations**

Any person found in violation of any provision of this code and Technical Standards shall be responsible for a civil infraction and subject to a fine of not less than \$500 for a first offense, and not less than \$1,000 for a subsequent offense, plus damages, expenses, and costs. Each day such violation occurs or continues shall be deemed a separate offense and shall make the violator liable for the imposition of a fine for each day. The rights and remedies provided for in this section are cumulative and in addition to any other remedies provided by law. An admission or determination of responsibility shall not exempt the offender from compliance with the requirements of this code.

Any person who aids or abets a person in a violation of this code shall be subject to the penalties provided in this section.

For purposes of this section, "subsequent offense" means a violation of the provisions of this code committed by the same person within 12 months of a previous violation of the same provision of this code for which said person admitted responsibility or was adjudicated to be responsible.

### **Sec. 116.703. Stop Work Order**

In addition to the penalties listed in Section 116.702 above, if construction activities are conducted contrary to the provisions of this code or approved final stormwater management plans, the City Engineer may order the work stopped, by notice, in writing, served on any person engaged in the doing or causing of such work to be done. Any such persons shall forthwith stop such work until authorized by the City Engineer to proceed with the work. The City of West Lafayette may also undertake or cause to be undertaken, any necessary or advisable protective measures to prevent violations of this code or to avoid or reduce the effects of noncompliance herewith. The cost of any such protective measures shall be the responsibility of the owner of the property upon which the work is being done, and the responsibility of any person carrying out or participating in the work.

Any person who neglects or fails to comply with a stop work order shall be responsible for a civil infraction and subject to a fine of not less than \$500 for a first offense, and not less than

\$1000 for a subsequent offense, plus damages, expenses, and costs. Each day such violation occurs or continues shall be deemed a separate offense and shall make the violator liable for the imposition of a fine for each day.

### **Sec. 116.704. Failure to Comply or Complete**

In addition to any other remedies, should any person fail to comply with the provisions of this code, the City of West Lafayette may, after the giving of reasonable notice and opportunity for compliance, have the necessary work done, and the owner shall be obligated to promptly reimburse the City of West Lafayette for all costs of such work.

### **Sec. 116.705. Suspension of Access to the Storm Drain System**

#### **(a) Suspension due to Emergency Situations**

The City Engineer may, without prior notice, suspend storm drain system discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the storm drain system, or to Waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the City Engineer may take such steps as deemed necessary to prevent or minimize damage to the storm drain system or Waters of the United States, or to minimize danger to persons.

#### **(b) Suspension due to the Detection of Illicit Discharge**

Any person discharging to the storm drain system in violation of this code may have their storm drain system access terminated if such termination would abate or reduce an illicit discharge. The City of West Lafayette will notify a violator of the proposed termination of its MS4 access. The violator may petition the City of West Lafayette Board of Public Works and Safety for a reconsideration and hearing.

### **Sec. 116.706. Corrective Action**

Nothing herein contained shall prevent the City of West Lafayette from taking such other lawful action as may be necessary to prevent or remedy any violation. All costs connected therewith shall accrue to the person or persons responsible, including the landowner of any land where such a violation occurs. Costs include, but are not limited to, repairs to the storm drain system made necessary by the violation, as well as those penalties levied by the EPA or IDEM for violation of the City of West Lafayette's NPDES permit, attorney fees, and other costs and expenses.

### **Sec. 116.707. Appeals**

Any person to whom any provision of this code has been applied may appeal in writing, not later than 30 days after the

action or decision being appealed from, to the West Lafayette Board of Public Works and Safety the action or decision whereby any such provision was so applied. Such appeal shall identify the matter being appealed, and the basis for the appeal. The West Lafayette Board of Public Works and Safety shall consider the appeal and make a decision whereby it affirms, rejects or modifies the action being appealed. In considering any such appeal, the West Lafayette Board of Public Works and Safety may consider the recommendations of the City Engineer and the comments of other persons having knowledge of the matter. In considering any such appeal, the West Lafayette Board of Public Works and Safety may grant a variance from the terms of this code to provide relief, in whole or in part, from the action being appealed, but only upon finding that the following requirements are satisfied:

- (a) The application of the code provisions being appealed will present or cause extraordinary difficulties for a development or development site; provided, however, that extraordinary difficulties shall not include the need for the developer to incur extreme expenses in order to comply with the code; and
- (b) The granting of the relief requested will not prevent the goals and purposes of this code, nor result in less effective management of stormwater runoff.

## Article VIII. Fees

### Section 116.801 Fees

- A. Together with the application and accompanying materials for stormwater management permit or for stormwater review, the applicant shall also submit Review Fees in accordance with the following schedule:

#### Base Permit Fees

Acreage	Residential (per unit)	Commercial	Industrial
0 up to less than 0.5	\$150	\$250	\$250
Equal to or greater than 0.5 up to less than 1	\$200	\$300	\$300
Equal to or greater than 1 up to less than 3	\$350	\$500 + \$40 Per acre	\$500 + \$40 Per acre
Equal to or greater than 3 up to less than 5	\$500	\$750 + \$40 Per acre	\$750 + \$40 Per acre
Equal to or greater than 5	\$500 + \$20 Per lot	\$750 + \$40 Per acre	\$750 + \$40 Per Acre

- B. Additional Fees. The applicant shall also agree to pay when applicable the following additional fees:

#### Additional Permit Fees

Stormwater Pollution Prevention Plan Review	For third and subsequent submissions only	\$100 each
Additional Inspections	Required by inadequate site conditions during or post-construction	\$50 each
Grading or Drainage Revision	Each revision during construction based on different site conditions after a permit has been issued	\$25 each
Engineering Review	Only applicable if review is outsourced	At cost
Projects disturbing < 5,000 square feet	Small projects, including Accessory structures	\$30 residential \$60 commercial

Upon approval of the applicant's final stormwater management plan, the City Engineer will furnish a written statement to the applicant specifying the total Additional Fees.

As a condition of approval of the final drainage plans by the City of West Lafayette, applicant shall pay to the City of West Lafayette Clerk-Treasurer the sum set forth in the statement. The City of West Lafayette may issue such a billing statement before the project advances to the final approval stage, and such payment is due by applicant upon receipt of the billing statement regardless of whether the project has advanced to the final approval stage.

The City of West Lafayette has the right to not accept the drainage improvements or to not approve the advancement of any project for which the Additional Fees have not been paid.

## APPENDIX A

### ABBREVIATIONS

BMP	Best Management Practice
COE	United States Army Corps of Engineers
CWA	Clean Water Act
EPA	Environmental Protection Agency
GIS	Geographical Information System
IDEM	Indiana Department of Environmental Management
MS4	Municipal Separate Storm Sewers
NOI	Notice of Intent
NOT	Notice of Termination
NRCS	USDA-Natural Resources Conservation Service
NPDES	National Pollution Discharge Elimination System
POTW	Publicly Owned Treatment Works
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
USDA	United States Department of Agriculture

### DEFINITIONS

**Best Management Practices.** Design, construction, and maintenance practices and criteria for stormwater facilities that minimize the impact of stormwater runoff rates and volumes, prevent erosion, and capture pollutants.

**Buffer Strip.** An existing, variable width strip of vegetated land intended to protect water quality and habitat.

**Catch Basin.** A chamber usually built at the curb line of a street for the admission of surface water to a storm drain or subdrain, having at its base a sediment sump designed to retain grit and detritus below the point of overflow.

**Channel.** A portion of a natural or artificial watercourse which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. It has a defined bed and banks which serve to confine the water.

**Constructed Wetland.** A manmade shallow pool that creates growing conditions suitable for wetland vegetation and is designed to maximize pollutant removal.

**Construction Activity.** Land disturbing activities, and land disturbing activities associated with the construction of infrastructure and structures. This term does not include routine ditch or road maintenance or minor landscaping projects.

**Construction Site Access.** A stabilized stone surface at all points of ingress or egress to a project site, for the purpose of capturing and detaining sediment carried by tires of vehicles or other equipment entering or exiting the project site.

**Contour.** An imaginary line on the surface of the earth connecting points of the same elevation.

**Contractor or Subcontractor.** An individual or company hired by the project site or individual lot owner, their agent, or the individual lot operator to perform services on the project site.

**Conveyance.** Any structural method for transferring stormwater between at least two points. The term includes piping, ditches, swales, curbs, gutters, catch basins, channels, storm drains, and roadways.

**Cross Section.** A graph or plot of ground elevation across a stream valley or a portion of it, usually along a line perpendicular to the stream or direction of flow.

**Culvert.** A closed conduit used for the conveyance of surface drainage water under a roadway, railroad, canal or other impediment.

**Dechlorinated Swimming Pool Discharge.** Chlorinated water that has either sat idle for seven (7) days following chlorination prior to discharge to the MS4 conveyance, or, by analysis, does not contain detectable concentrations (less than five-hundredths (0.05) milligram per liter) of chlorinated residual.

**Detention.** Managing stormwater runoff by temporary holding and controlled release.

**Detention Basin.** A facility constructed or modified to restrict the flow of storm water to a prescribed maximum rate, and to detain concurrently the excess waters that accumulate behind the outlet.

**Detention Storage.** The temporary detaining or storage of stormwater in storage facilities, on rooftops, in streets, parking lots, school yards, parks, open spaces or other areas under predetermined and controlled conditions, with the rate of release regulated by appropriately installed devices.

**Detritus.** Dead or decaying organic matter; generally contributed to stormwater as fallen leaves and sticks or as dead aquatic organisms.

**Developer.** Any person financially responsible for construction activity, or an owner of property who sells or leases, or offers for sale or lease, any lots in a subdivision.

**Discharge.** Usually the rate of water flow. A volume of fluid passing a point per unit time commonly expressed as cubic feet per second, cubic meters per second, gallons per minute, or millions of gallons per day.

**Disposal.** The discharge, deposit, injection, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that the solid waste or hazardous waste, or any constituent of the waste, may enter the environment, be emitted into the air, or be discharged into any waters, including ground waters.

**Ditch.** A man-made, open drainageway in or into which excess surface water or groundwater drained from land, stormwater runoff, or floodwaters flow either continuously or intermittently.

**Drain.** A buried slotted or perforated pipe or other conduit (subsurface drain) or a ditch (open drain) for carrying off surplus groundwater or surface water.

**Drainage.** The removal of excess surface water or groundwater from land by means of ditches or subsurface drains. Also see Natural drainage.

**Drainage Area.** The area draining into a stream at a given point. It may be of different sizes for surface runoff, subsurface flow and base flow, but generally the surface runoff area is considered as the drainage area.

**Drainageway.** A natural or artificial stream, closed conduit, or depression that carries surface water. This term is used as a neutral term applying to all types of drains and watercourses, whether man-made or natural.

**Duration.** The time period of a rainfall event.

**Environment.** The sum total of all the external conditions that may act upon a living organism or community to influence its development or existence.

**Erosion.** The wearing away of the land surface by water, wind, ice, gravity, or other geological agents. The following terms are used to describe different types of water erosion:

- *Accelerated erosion*--Erosion much more rapid than normal or geologic erosion, primarily as a result of the activities of man.
- *Channel erosion* --An erosion process whereby the volume and velocity of flow wears away the bed and/or banks of a well-defined channel.
- *Gully erosion* --An erosion process whereby runoff water accumulates in narrow channels and, over relatively short periods, removes the soil to considerable depths, ranging from 1-2 ft. to as much as 75-100 ft.
- *Rill erosion*--An erosion process in which numerous small channels only several inches deep

are formed; occurs mainly on recently disturbed and exposed soils.

- *Splash erosion*--The spattering of small soil particles caused by the impact of raindrops on wet soils; the loosened and spattered particles may or may not be subsequently removed by surface runoff.
- *Sheet erosion*--The gradual removal of a fairly uniform layer of soil from the land surface by runoff water.

**Erosion and Sediment Control.** A practice, or a combination of practices, to minimize sedimentation by first reducing or eliminating erosion at the source and then as necessary, trapping sediment to prevent it from being discharged from or within a project site.

**Filter Strip.** Usually a long, relatively narrow area (usually, 20-75 feet wide) of undisturbed or planted vegetation used near disturbed or impervious surfaces to filter stormwater pollutants for the protection of watercourses, reservoirs, or adjacent properties.

**Flood (or Flood Waters).** A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow, the unusual and rapid accumulation, or the runoff of surface waters from any source.

**Floodplain.** The channel proper and the areas adjoining the channel which have been or hereafter may be covered by the regulatory or 100-year flood. Any normally dry land area that is susceptible to being inundated by water from any natural source. The floodplain includes both the floodway and the floodway fringe districts.

**Floodway.** The channel of a river or stream and those portions of the floodplains adjoining the channel which are reasonably required to efficiently carry and discharge the peak flow of the regulatory flood of any river or stream.

**Floodway Fringe.** That portion of the flood plain lying outside the floodway, which is inundated by the regulatory flood.

**Footing Drain.** A drain pipe installed around the exterior of a basement wall foundation to relieve water pressure caused by high groundwater elevation.

**Garbage.** All putrescible animal solid, vegetable solid, and semisolid wastes resulting from the processing, handling, preparation, cooking, serving, or consumption of food or food materials.

**Gasoline Outlet.** An operating gasoline or diesel fueling facility whose primary function is the resale of fuels. The term applies to facilities that create five thousand (5,000) or more square feet of impervious surfaces, or generate an average daily traffic count of one hundred (100) vehicles per one thousand (1,000) square feet of land area.

**Grade.** (1) The inclination or slope of a channel, canal, conduit, etc., or natural ground surface usually expressed in terms of the percentage the vertical rise (or fall) bears to the corresponding horizontal distance. (2) The finished surface of a canal bed, roadbed, top of embankment, or bottom of excavation; any surface prepared to a design elevation for the support of construction, such as paving or the laying of a conduit. (3) To finish the surface of a canal bed, roadbed, top of embankment, or bottom of excavation, or other land area to a smooth, even condition.

**Grading.** The cutting and filling of the land surface to a desired slope or elevation.

**Grass.** A member of the botanical family Graminae, characterized by blade-like leaves that originate as a sheath wrapped around the stem.

**Groundwater.** Accumulation of underground water, natural or artificial. The term does not include manmade underground storage or conveyance structures.

**Habitat.** The environment in which the life needs of a plant or animal are supplied.

**Highly Erodible Land (HEL).** Land that has an erodibility index of eight or more. Within the Tippecanoe MS4 area, the following soils are listed as highly erodible or potentially highly erodible.

- Coloma (CrC)
- Crosby (CwB2)
- Desker (DmC2, DoC2, DpD2)
- Kalamazoo (KaB2, KbB2, KcB2, KcC2)
- Kosciusko (KoD2, KpC3)
- Lauramie (LnB2)
- Longlois (LvB2, LwB2)
- Miami (MsC2, MsD2, MtC3, MtD3)
- Octagon (OmB2, OmC2, OpC3)
- Rainsville (RaB2)
- Richardville (RdB2, RdC2)
- Rodman (RsF)
- Spinks (StC)
- Strawn (SyF)
- Toronto (TnB2)

**Hydrologic Unit Code.** A numeric United States Geologic Survey code that corresponds to a watershed area. Each area also has a text description associated with the numeric code.

**Hydrology.** The science of the behavior of water in the atmosphere, on the surface of the earth, and underground. A typical hydrologic study is undertaken to compute flow rates associated with specified flood events.

**Illicit Discharge.** Any discharge to a conveyance that is not composed entirely of stormwater except naturally occurring floatables, such as leaves or tree limbs.

**Impaired Waters.** Waters that do not or are not expected to meet applicable water quality standards, as included on IDEM's CWA Section 303(d) List of Impaired Waters. Within the Tippecanoe MS4 area, the following waters are considered impaired:

- Anderson Creek
- Buck Creek
- Burnett Creek
- Dry Run (and other tributaries)
- Elliot Ditch
- Flint Creek
- Hentz Ditch
- Hog Run
- Lauramie Creek
- South Fork Wildcat Creek
- Sugar Creek-Little Sugar Creek
- Tippecanoe River
- Wabash River
- Wea Creek
- Wildcat Creek

**Impervious Surface.** Surfaces, such as pavement and rooftops, which prevent the infiltration of stormwater into the soil.

**Individual Building Lot.** A single parcel of land within a multi-parcel development.

**Individual Lot Operator.** A contractor or subcontractor working on an individual lot.

**Individual Lot Owner.** A person who has financial control of construction activities for an individual lot.

**Infiltration.** Passage or movement of water into the soil. Infiltration practices include any structural BMP designed to facilitate the percolation of run-off through the soil to groundwater. Examples include infiltration basins or trenches, dry wells, and porous pavement.

**Inlet.** An opening into a storm drain system for the entrance of surface storm water runoff, more completely described as a storm drain inlet.

**Land Surveyor.** A person licensed under the laws of the State of Indiana to practice land surveying.

**Larger Common Plan of Development or Sale.** A plan, undertaken by a single project site owner or a group of project site owners acting in concert, to offer lots for sale or lease; where such land is contiguous, or is known, designated, purchased or advertised as a common unit or by a common name, such land shall be presumed as being offered for sale or lease as part of a larger common plan. The term also includes phased or other construction activity by a single entity for its own use.

**Measurable Storm Event.** A precipitation event that results in a total measured precipitation accumulation equal to, or greater than, one-half (0.5) inch of rainfall.

**MS4 Operator.** The person responsible for development, implementation, or enforcement of the Minimum control

measures, as defined in 327 IAC 15-13 (Rule 13), for a designated MS4 area.

**Mulch.** A natural or artificial layer of plant residue or other materials covering the land surface which conserves moisture, holds soil in place, aids in establishing plant cover, and minimizes temperature fluctuations.

**Municipal Separate Storm Sewers.** An MS4 meets all the following criteria: (1) is a conveyance or system of conveyances owned by the state, county, city, town, or other public entity; (2) discharges to waters of the U.S.; (3) is designed or used for collecting or conveying stormwater; (4) is not a combined sewer; and, (5) is not part of a Publicly Owned Treatment Works (POTW).

**National Pollution Discharge Elimination System.** A permit developed by the U.S. EPA through the Clean Water Act. In Indiana, the permitting process has been delegated to IDEM. This permit covers aspects of municipal stormwater quality.

**Natural Drainage.** The flow patterns of stormwater run-off over the land in its pre-development state.

**Nutrient(s).** (1) A substance necessary for the growth and reproduction of organisms. (2) In water, those substances (chiefly nitrates and phosphates) that promote growth of algae and bacteria.

**Open Drain.** A natural watercourse or constructed open channel that conveys drainage water.

**Open Space.** Any land area devoid of any disturbed or impervious surfaces created by industrial, commercial, residential, agricultural, or other manmade activities.

**Outfall.** The point, location, or structure where a pipe or open drain discharges to a receiving body of water.

**Outlet.** The point of water disposal from a stream, river, lake, tidewater, or artificial drain.

**Outstanding Waters.** Waters known for their scenic beauty and recreational opportunities. Within the Tippecanoe MS4 area, these include:

- The Wabash River Heritage Corridor
- Wildcat Creek
- The Middle Fork of Wildcat Creek
- The South Fork of Wildcat Creek

**Permanent stabilization.** The establishment, at a uniform density of seventy percent (70%) across the disturbed area, of vegetative cover or permanent non-erosive material that will ensure the resistance of the soil to erosion, sliding, or other movement.

**Pervious.** Allowing movement of water.

**Point Source.** Any discernible, confined, and discrete conveyance including but not limited to any pipe, ditch,

channel, tunnel, conduit, well, discrete fissure, or container from which pollutants are or maybe discharged (P.L. 92-500, Section 502[14]).

**Professional Engineer.** A person licensed under the laws of the State of Indiana to practice professional engineering.

**Project Site.** The entire area on which construction activity is to be performed.

**Project site owner.** The person required to submit a stormwater permit application, and required to comply with the terms of this code, including a developer or a person who has financial and operational control of construction activities, and project plans and specifications, including the ability to make modifications to those plans and specifications.

**Recreational Waters.** Most recreational activities within the MS4 area revolve around six waterways:

- Burnett Creek
- Wabash River
- North Fork Wildcat Creek
- South Fork Wildcat Creek
- Tippecanoe River
- Wildcat Creek, main stem

**Redevelopment.** Alterations of a property that change a site or building in such a way that there is disturbance of one (1) acre or more of land. The term does not include such activities as exterior remodeling.

**Refueling area.** An operating gasoline or diesel fueling area whose primary function is to provide fuel to equipment or vehicles.

**Regulatory Flood.** The discharge or elevation associated with the 100-year flood as calculated by a method and procedure which is acceptable to and approved by the Indiana Department of Natural Resources and the Federal Emergency Management Agency. The "regulatory flood" is also known as the "base flood".

**Regulatory Floodway.** See Floodway.

**Release Rate.** The amount of storm water release from a storm water control facility per unit of time.

**Reservoir.** A natural or artificially created pond, lake or other space used for storage, regulation or control of water. May be either permanent or temporary. The term is also used in the hydrologic modeling of storage facilities.

**Retention.** The storage of stormwater to prevent it from leaving the development site. May be temporary or permanent.

**Retention Basin.** A type of storage practice that has no positive outlet, used to retain storm water run-off for an indefinite amount of time. Runoff from this type of basin is removed only by infiltration through a porous bottom or by evaporation.

**Return Period.** The average interval of time within which a given rainfall event will be equaled or exceeded once. A flood having a return period of 100 years has a one percent probability of being equaled or exceeded in any one year.

**Riparian Zone.** Areas on and adjacent to the banks of a stream, river, or pond, through which surface and subsurface hydrology connect waterbodies with their adjacent uplands.

**Riparian Habitat.** A land area adjacent to a waterbody that supports animal and plant life associated with that waterbody.

**Runoff.** That portion of precipitation that flows from a drainage area on the land surface, in open channels, or in stormwater conveyance systems.

**Runoff Coefficient** - A decimal fraction relating the amount of rain which appears as runoff and reaches the storm drain system to the total amount of rain falling. A coefficient of 0.5 implies that 50 percent of the rain falling on a given surface appears as storm water runoff.

**Sediment.** Solid material (both mineral and organic) that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface.

**Sedimentation.** The process that deposits soils, debris and other unconsolidated materials either on the ground surfaces or in bodies of water or watercourses.

**Site.** The entire area included in the legal description of the land on which land disturbing activity is to be performed.

**Slope.** Degree of deviation of a surface from the horizontal, measured as a numerical ratio or percent. Expressed as a ratio, the first number is commonly the horizontal distance (run) and the second is the vertical distance (rise)--e.g., 2:1. However, the preferred method for designation of slopes is to clearly identify the horizontal (H) and vertical (V) components (length (L) and Width (W) components for horizontal angles). Also note that according to international standards (Metric), the slopes are presented as the vertical or width component shown on the numerator--e.g., 1V:2H. Slope expressions in this code follow the common presentation of slopes--e.g., 2:1 with the metric presentation shown in parenthesis--e.g., (1V:2H). Slopes can also be expressed in "percents". Slopes given in percents are always expressed as  $(100 \times V/H)$  --e.g., a 2:1 (1V:2H) slope is a 50% slope.

**Soil.** The unconsolidated mineral and organic material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

**Soil and Water Conservation District.** A public organization created under state law as a special-purpose district to develop and carry out a program of soil, water, and related resource conservation, use, and development within its boundaries. A subdivision of state government with a local governing body, established under IC 14-32.

**Solid Waste.** Any garbage, refuse, debris, or other discarded material.

**Spill.** The unexpected, unintended, abnormal, or unapproved dumping, leakage, drainage, seepage, discharge, or other loss of petroleum, hazardous substances, extremely hazardous substances, or objectionable substances. The term does not include releases to impervious surfaces when the substance does not migrate off the surface or penetrate the surface and enter the soil.

**Storm Duration.** The length of time that water may be stored in any stormwater control facility, computed from the time water first begins to be stored.

**Storm Event.** An estimate of the expected amount of precipitation within a given period of time. For example, a 10-yr. frequency, 24-hr. duration storm event is a storm that has a 10% probability of occurring in any one year. Precipitation is measured over a 24-hr. period.

**Storm Sewer.** A closed conduit for conveying collected storm water, while excluding sewage and industrial wastes. Also called a storm drain.

**Stormwater.** Water resulting from rain, melting or melted snow, hail, or sleet.

**Stormwater Drainage System.** All means, natural or man-made, used for conducting storm water to, through or from a drainage area to any of the following: conduits and appurtenant features, canals, channels, ditches, storage facilities, swales, streams, culverts, streets and pumping stations.

**Stormwater Pollution Prevention Plan.** A plan developed to minimize the impact of storm water pollutants resulting from construction activities.

**Stormwater Quality Management Plan.** A comprehensive written document that addresses stormwater runoff quality.

**Stormwater Quality Measure.** A practice, or a combination of practices, to control or minimize pollutants associated with storm water runoff.

**Stormwater Runoff.** The water derived from rains falling within a tributary basin, flowing over the surface of the ground or collected in channels or conduits.

**Stormwater Technical Standards Manual.** A manual of technical standards and methods adopted from time to time by the West Lafayette Board of Public Works and Safety upon the recommendation of the City Engineer.

**Strip Development.** A multi-lot project where building lots front on an existing road.

**Subdivision.** Any land that is divided or proposed to be divided into lots, whether contiguous or subject to zoning requirements, for the purpose of sale or lease as part of a larger common plan of development or sale.

**Subsurface Drain.** A pervious backfield trench, usually containing stone and perforated pipe, for intercepting groundwater or seepage.

**Surface Runoff.** Precipitation that flows onto the surfaces of roofs, streets, the ground, etc., and is not absorbed or retained by that surface but collects and runs off.

**Swale.** An elongated depression in the land surface that is at least seasonally wet, is usually heavily vegetated, and is normally without flowing water. Swales conduct stormwater into primary drainage channels and may provide some groundwater recharge.

**Temporary Stabilization.** The covering of soil to ensure its resistance to erosion, sliding, or other movement. The term includes vegetative cover, anchored mulch, or other non-erosive material applied at a uniform density of seventy percent (70%) across the disturbed area.

**Topographic Map.** Graphical portrayal of the topographic features of a land area, showing both the horizontal distances between the features and their elevations above a given datum.

**Topography.** The representation of a portion of the earth's surface showing natural and man-made features of a given locality such as rivers, streams, ditches, lakes, roads, buildings and most importantly, variations in ground elevations for the terrain of the area.

**Urbanization.** The development, change or improvement of any parcel of land consisting of one or more lots for residential, commercial, industrial, institutional, recreational or public utility purposes.

**Water Quality.** A term used to describe the chemical, physical, and biological characteristics of water, usually in respect to its suitability for a particular purpose.

**Water Resources.** The supply of groundwater and surface water in a given area.

**Waterbody.** Any accumulation of water, surface, or underground, natural or artificial, excluding water features designed and designated as water pollution control facilities.

**Watercourse.** Any river, stream, creek, brook, branch, natural or man-made drainageway in or into which stormwater runoff or floodwaters flow either continuously or intermittently.

**Watershed.** The region drained by or contributing water to a specific point that could be along a stream, lake or other stormwater facilities. Watersheds are often broken down into subareas for the purpose of hydrologic modeling.

**Watershed Area.** All land and water within the confines of a drainage divide. See also Watershed.

**Wellhead Protection Area.** An area of land in which human activities are regulated to prevent contamination of a well or well-field supplying a public drinking-water system.

**Wetlands.** Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

MS4 Area

Base Map Source: US Bureau of the Census, TIGER Files, 2000

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PROJECT:	NPDES PHASE 2 TIPPECANOE COUNTY, IN
TITLE:	TIPPECANOE COUNTY MS4 AREA

APPROX. SCALE 1"=1.5 miles
DATE: 03/04
EXHIBIT 1: